

IN THE CLAIMS:

1.(currently amended): A catalyst useful for the selective hydrogenation of acetylenic impurities in crude olefin and diolefin streams ~~catalyst comprising Ni only or consisting of about 9.67 to about 20 wt. % Ni and one or more elements selected from the group consisting of from about 0.005 wt. % to about 10 wt. % Cu, Re, Pd, from about 0.1 to about 10 wt. % Zn, from about 0.1 to about 7 wt. % Mg, [[Mo,]] from about 0.1 to about 7 wt. % Ca and from about 0.05 to about 7 wt. % Bi deposited on [[a]] an alumina support~~ having the following physical properties: BET surface area of from 30 to about 100 m²/g, total nitrogen pore volume of from 0.4 to about 0.9 cc/g, and an average pore diameter of from about 110 to 450, at least 50% of the pores larger than 100 Å diameter, and a total pore volume from about 0.405 cc/g to about 0.9 cc/g and ABD (apparent bulk density) from about 0.35 to about 0.75 g/cc Å.

2-6.(cancelled):

7.(currently amended): The ~~selective hydrogenation catalyst according to claim [[3]] 1~~ wherein said alumina contains less than about 2 wt. % alkali metal.

8.(currently amended): The ~~selective hydrogenation catalyst according to claim [[3]] 1~~ wherein said alumina comprises transition alumina comprising the delta, kappa, theta and alpha crystalline forms or mixtures thereof.

9-16.(cancelled):

17.(currently amended): A selective hydrogenation catalyst comprising from about 4 wt. % to about 20 wt. % Ni and The selective hydrogenation catalyst according to claim 9 wherein said catalyst comprises from about 0.05 to about 7 wt. % Bi deposited on a support having the following physical properties: BET surface area of from 30 to about 100 m²/g, total nitrogen pore volume of from 0.4 to about 0.9 cc/g, and an average pore diameter of from about 110 to 450 Å.

18-31.(cancelled):

32.(new): A catalyst useful for the selective hydrogenation of acetylenic impurities in crude olefin and diolefin streams consisting of about 9.67 to about 20 wt.% Ni deposited on an alumina support having the following physical properties: BET surface area of from 30 to about 100 m²/g, total nitrogen pore volume of from 0.4 to about 0.9 cc/g, and an average pore diameter of from about 110 to 450, at least 50% of the pores larger than 100 Å diameter, and a total pore volume from about 0.405 cc/g to about 0.9 cc/g and ABD (apparent bulk density) from about 0.35 to about 0.75 g/cc Å.